

**COMPARING THE EFFECT OF DOWNSIZING AND REDUCING  
PAY ON COLLECTIVE ORGANIZATIONAL COMMITMENT AND  
FIRM FINANCIAL PERFORMANCE AND THE ROLE OF  
INVESTMENT IN TRAINING**

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by

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## **ABSTRACT**

This study compares the impact of downsizing and reducing pay on collective organizational commitment and firm financial performance. An examination of organizations operating under a salary schedule system in Korea shows that there is no significant difference between the effect of downsizing and reducing pay on collective organizational commitment and firm financial performance. However, compared to downsizing, reducing pay yields better financial performance for organizations that invest relatively highly in training of their employees through maintaining higher levels of organizational commitment.

**Keywords:** Reducing pay, downsizing, pay reduction, investment in training, labor cost reduction strategy, organizational strategy, psychological contract, configurational approach

## **BIOGRAPHICAL SKETCH**

Yeong Joon (YJ) Yoon earned his Bachelor of Business Administration degree and Bachelor of Science in Agriculture degree from Seoul National University in 2006. He received his Master of Industrial and Labor Relations degree in 2012 from Cornell University. In 2012, he joined the MS/PhD program in HR Studies at Cornell University. Yeong Joon (YJ) Yoon also has worked as an assistant manager in the Human Resource Management Department at SK Shipping from 2006 to 2010.

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I thank to God, my family, friends and colleagues who have made me everything I am today. I hope this research and my future studies help organizations to make better decisions in the days of hardship.

*“This too shall pass” (Solomon).*

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## **1. Introduction**

Rapid changes in business environments have forced many organizations to develop more effective methods of managing their human capital. In response to the changes, increasing attention has been paid to employment practices that can create firm-specific human capital that are difficult for other organizations to imitate (Barney, 1991; Barney & Wright, 1998). A group of committed employees is viewed as valuable and relatively rare firm specific resource that are difficult for other organizations to imitate (Gong, Law, Chang & Xin, 2009) and is argued to drive organizational performance by using discretion to carry out tasks in ways that are consistent with organizational goals (Arthur, 1994). As a result, over the last several decades, the study of strategic human resource management (SHRM) has examined HR management best practices (e.g. Pfeffer, 1994; Osterman, 1994), HR systems or bundles of practices (e.g. Lawler, 1986; MacDuffie, 1995; Walton, 1985; Lawler, Mohman & Ledford, 1995; Huselid, 1995), and various employment relationships (e.g. Lepak & Snell, 1999; Rousseau, 1995; Tsui, Pearce, Porter & Tripoli, 1997) that can yield superior firm performance under the assumption and belief that certain HR practices (or group of HR practices) and employment relationships may better develop and maintain a group of committed employees (Arthur, 1994). Reflecting this, these HR practices (or bundles of HR practices) were often labeled as high “commitment” HR practices and systems (e.g. Iverson & Zatzick, 2007; Kwon, Bae & Lawler, 2010; McClean & Collins, 2011). However, SHRM studies tend to focus on “improvements” that these practices or relationships make and have been less clear about which practices or relationships can be better under unfavorable circumstances.

Two recessions that greatly impacted organizations worldwide in the last decade (i.e. recession started by the IT crisis in 2001 and by the financial crisis in 2008) have forced many organizations to reduce costs while keeping business operations flowing as smoothly as possible through maintaining levels of employee commitment. Among various labor cost reduction practices, downsizing and reducing pay has known to be the most common practices that organizations implement (Zingheim & Schuster, 2002). Although the two options both can be effective at reducing labor costs, the choice between the two options can send very distinct signals in the employment relationship that organizations value. As a result, the two practices can provide distinct and valuable implications in managing the employment relationship and human capital. However, there is a dearth of research in comparing the consequences of the two practices.

Thus, the objective in this study is to compare the effect of downsizing and reducing pay on collective organizational commitment drawing on the expected motivational and sorting effect of the two options. Furthermore, I will examine circumstances under which implementing one option can better maintain the level of collective organizational commitment relative to the other. More specifically, I'll examine the firm's investment in employee training as an important moderator drawing on the psychological contract literature (e.g. Morrison & Robinson, 1997; Rousseau & Greler, 1994; Zhao, Wayne, Glibkowski & Bravo, 2007). Finally, based on the belief that a group of committed employees can be a firm specific resource that is difficult for other organizations to imitate, I will test a moderated mediation model that compares the results of downsizing and reducing pay on firm's financial performance through the



mediation of collective organizational commitment that is dependent on the firm's investment in training of its employees.

This study makes meaningful contributions to the SHRM literature by addressing an important issue that has been previously neglected: comparing the consequences of HR practices (downsizing versus reducing pay) for labor cost reduction. Although studies that examine the consequences of a downsizing or reducing pay alone can also be invaluable by providing significant implications, conducting studies that compare the consequences of the two options simultaneously and identifying situations or environments where one option yields better outcomes than the other can also provide management with meaningful information.

## **2. Theoretical Background and Hypotheses**

### **1) Downsizing and reducing pay**

In this study, I define downsizing as an organization's conscious act of a reduction in the number of employees. Here, I distinguish downsizing and natural attrition by emphasizing that downsizing is an organization's "conscious" act and is initiated by the organization (e.g. layoffs, buyouts, spinoffs, etc.). On the other hand, natural attrition is a reduction in the number of employees due to voluntary turnover exceeding new hires. In this case, the reduction in number of employees is not intended by the organization (unless the organization is intentionally not filling vacant positions). This distinction is important because when an act is perceived, people evaluate the actor's action based on the assumption that they make about the actor's internal state (Robbins, 2012). Therefore, it is likely that employees will make assumptions of the organization's

internal state and try to evaluate the action when downsizing is implemented. On the other hand, employees are not likely to make judgments of the organization's internal state in the case of natural attrition since the organization is not the initiator of the event. Therefore, downsizing is much more likely to affect employee's perception towards the organization than natural attrition although both events result in reduction in the number of employees.

Reducing pay, in this study, is defined as an organization's conscious act of a reduction in level of pay of employees. Here, the intentionality of an act is not emphasized since it is extremely unlikely that the reduction in employee's pay level is initiated by actors other than the organization.

## **2) The effect of downsizing/reducing pay on collective organizational commitment**

Although organizational commitment has been conceptualized and defined in several ways (Mathieu & Zajac, 1990; Morrow, 1983; Wiener & Vardi, 1980; Wright & Bonett, 2002), the most frequently studied concept has been the attitudinal organizational commitment defined as "the strength of an employee's emotional attachment to an organization and acceptance of the organization's goals and values" (Wright & Bonett, 2002). In this study, attitudinal organizational commitment (hereinafter "organizational commitment") is conceptualized at the firm level since the research question in this study is to identify which labor cost reduction practice is preferred in terms of maintaining a "group" of committed employees. Organizational commitment is a construct that can be conceptualized and operationalized at the firm-level since it is an employee attitude revolving around and directed toward the organization (Chun, Shin, Choi, & Kim, 2013). A growing number of studies have conceptualized and operationalized organizational

commitment at the group and firm-level (Chun et al, 2013; Simon & Roberson, 2003, Wright, Gardner, Moynihan, & Allen, 2005).

In this section, the expected effect of downsizing and reducing pay on collective organizational commitment will be examined from both the motivational and sorting points of view.

**The motivational effect of downsizing/reducing pay on collective organizational**

**commitment** From the logic of social exchange (Blau, 1964), we can expect that downsizing and reducing pay will both reduce organizational commitment of employees. Blau's (1964) social exchange framework posits that employees reciprocate correspondingly to the way that they are treated by their organization. For example, employees with a higher perception of organizational support demonstrate higher organizational commitment and lower absenteeism (Eisenberger, Huntington, Hutchison & Sowa, 1986). An organization where downsizing has taken place may impose stress on its employees by forcing them to adjust to the new work environment since it is likely that comparable workflow in downsized organizations is now managed by fewer employees due to the elimination of employees and thus workflow restructuring is needed to some extent. Moreover, survivors of a downsized organization may also feel that the organization does not value the job security of its employees. This, in turn, can make employees feel less well treated by the organization and thereby feel less attached or obligated to the organization. In a similar vein, employees in pay-reduced organizations may also feel less well treated since it is likely that they are now paid less for doing comparable work. Therefore in both cases, employees are likely to reciprocate with lower organizational commitment.

Empirical results also support this argument. For example, a field study by Brockner and colleagues (1987) shows that the survivors of downsizing experience a decrease in the level of organizational commitment. A study by Knudsen and colleagues (2003), which utilizes national employee survey data, also shows a decline in organizational commitment among survivors of downsizing. I know of no study that has directly examined the relationship between reducing pay and organizational commitment. However, the negative relationship between the two constructs can be expected from the fact that various meta-analyses show a positive relationship between pay-level and pay satisfaction (e.g. Williams, McDaniel, & Nguyen, 2006) and between pay satisfaction and organizational commitment (e.g. Mathieu & Zajac, 1990). Therefore, the casual sequence of 'pay reduction → lower pay level → lower pay satisfaction → lower organizational commitment' can be assumed.

In summary, from the motivational effect point of view, I expect that downsizing and reducing pay will both have negative effects on organizational commitment of employees. And if organizational commitment can be conceptualized and aggregated at the firm level, we can also expect that the two options will both have negative effects on collective organizational commitment. However, it is theoretically ambiguous to predict which option will have a stronger negative effect on collective organizational commitment. Downsizing imposes adjustments to the workflow restructuring and decreases perceived job security while reducing pay lowers the pay level of employees. Although there are reasons for assuming the primacy of pay as a motivator (Rottenberg, 1956; Gerhart & Rynes, 2003), various surveys also show that people value job security

over higher pay unless the pay level is too low (Library Worklife, 2009; Omer, 2008; Taylor et al., 2012).

### **The sorting effect of downsizing/reducing pay on collective organizational**

**commitment** While the motivational effect of downsizing and reducing pay both predict a decrease in collective organizational commitment, the sorting effect of the two options both predict an increase in collective organizational commitment. In the case of downsizing, most firms often have the option of selecting the employees to dismiss. Firms may use the opportunity to dismiss the least productive or committed (which studies show positive correlations of; e.g. Riketta, 2002) employees. An interview of over 300 business people made by Bewley (1998) also reveals that firms often use layoffs to rid themselves of the least capable workers. Therefore, strictly from the sorting effect point of view, firms may be left with employees of higher level of organizational commitment after downsizing.

In the case of reducing pay, firms may also be left with employees of a higher level of organizational commitment when the sorting effect is only considered. This is because employees with lower organizational commitment are more likely to turn over under an unpleasant shock and pay reduction can be viewed as an unpleasant shock to employees. In alignment with this argument, a study by Hochwarter, Perrewe, Ferris and Guercio (1999) shows that an employee is likely to demonstrate a higher level of turnover intention when political activities are perceived (unpleasant shock) in his or her workplace but this relationship is attenuated by the level of employee's organizational commitment. Therefore, strictly from the sorting effect point of view, we can also

anticipate that the level of collective organizational commitment will increase after reducing pay.

In sum, strictly from a sorting effect point of view, I expect that downsizing and reducing pay will both increase collective organizational commitment. However, it is also theoretically ambiguous to predict which option will have a stronger positive effect on collective organizational commitment. Although the immediate sorting effect of downsizing can be stronger since the firms can select whom to dismiss and thereby the restructuring of the workforces takes place immediately, this effect can be leveled as time goes by due to the sorting effect of reducing pay through voluntary turnover.

Since the motivational effect predicts the same negative relationship and sorting effect predicts the same positive relationship between reducing pay and collective organizational commitment and between downsizing and collective organizational commitment, and it is theoretically ambiguous to predict which relationship will be stronger, I will not hypothesize the difference in relative strength of downsizing and reducing pay on collective organizational commitment. This will only be examined empirically here.

### **3) The moderating effect of an organization's investment in training on the relationship between downsizing/reducing pay and collective organizational commitment**

A psychological contract, in an employee-organization relationship, refers to an unwritten agreement that sets out what employees expect from organizations, and vice versa (Robins, 2012). The psychological contract is held by employees, not by the organization or an agent of the organization, as beliefs of obligation between the two

parties (Levinson, Price, Munden, Mandl, & Solley, 1962; Morrison & Robinson, 1997; Rousseau, 1989; Schein, 1965; Sims, 1994). In the psychological contract, the agreement is based on perceived promises and can be formed through various means: written documents, oral conversations, organizational policies, etc. (Morrison & Robinson, 1997; Rousseau & Greler, 1994; Rousseau & McLean Parks, 1993). HR practices are argued to be one of the strong factors that can shape psychological contracts (Rousseau & Greler, 1994).

By providing extensive training opportunities to employees, an organization can send signals that it values the social exchange relationship, which is to be open-ended and long-term, in exchange for the employees' commitment, with its employees (Abraham & Prosch, 2000; Aguinis, 2012; Tsui et al., 1997). Employees prefer long-term relationships over the short-term relationships with the organization to reduce risk in fluctuations in income (Abraham & Prosch, 2000). On the other hand, many organizations are interested in labor flexibility to minimize fixed costs. However, by providing training opportunities to employees, and thereby investing in human capital of its employees, organization's flexibility of labor can be weakened by increasing the risk of employee turnover and retraining costs (Abraham & Prosch, 2000; Lazear & Gibbs, 2009). Therefore, by providing extensive training opportunities to employees, organizations can signal to employees their willingness to commit to the long-term social exchange relationship. Under this condition, employees can form a psychological contract with the organization of social exchange relationship (Tui et al., 1997). On the other hand, by providing fewer training opportunities to employees, an organization can send out a signal that it values long-term social exchange relationships with its employees

less. Under this condition, employees are less likely to form a psychological contract with the organization of social exchange relationship (Tsui et al., 1997).

Reducing pay can ensure the job security of employees at the cost of lower pay. On the other hand, downsizing can ensure the pay level of employees who stay at the cost of lower levels of perceived job security. Therefore, by selecting the option of downsizing over reducing pay, an organization can send a signal that it values the economic exchange relationship, which is more short-term and focused on an economic inducement in exchange for employees' contribution with its employees, over a long-term social exchange relationship. Under this condition, employees are more likely to form a psychological contract with the organization of economic exchange relationship (Tui et al., 1997). On the other hand, by selecting the option of reducing pay over downsizing, an organization can send a signal that it values a long-term social exchange relationship over an economic exchange relationship with its employees. Under this condition, employees can form a psychological contract with the organization of social exchange relationship (Tui et al., 1997).

Under the condition of high investment in employee training, reducing pay, compared to downsizing, can better maintain the psychological contract between the organization and its employees. This is because, in this case, the organization sends the congruent signals of valuing social exchange relationships with its employees. Alignment in messages from HR polices can strengthen, or better maintain, the psychological contract (Rousseau & Greler, 1994). However, under the condition of high investment in employee training, downsizing, compared to reducing pay, can weaken the psychological contract between the organization and employees. This is because, in this



case, the organization sends out incongruent signals of what it values in the employment relationship and employees can perceive the situation as a breach of the psychological contract. Incongruence or misalignment of messages sent out to employees through inconsistency in HR policies is argued to be the cause for perception of violation in psychological contracts (Morrison and Robinson, 1997; Rousseau & Greler, 1994).

Empirical studies show that the breach of a psychological contract reduces organizational trust and commitment (Cantisano, Dominiguez, & Depolo, 2008; Cassar & Briner, 2011; Ng, Feldnman, & Lam, 2010; Robinson, 1996; Zhao et al., 2007). When a breach of a psychological contract occurs, employees question the integrity of the organization and become cynical or hostile toward the organization's intentions (Zhao et al., 2007). In a similar vein, when a breach occurs, employees can lose motivation to identify themselves with the organization and maintain their commitment to the organization (Zhao et al, 2007). Breach of contract is likely to decrease the level of employees' trust and emotional bonds in the employment relationship and their identification with the organization (Robinson, 1996). This can lead employees to put their interests ahead of the organization's interests (Cassar & Briner, 2011).

Under the condition of low investment in employee training, the organization sends out congruent signals to employees that it values an economic exchange relationship over a social exchange relationship by selecting the option of downsizing over reducing pay. However, the effect of decision in labor cost reduction strategy (downsizing versus reducing pay) on organizational commitment can be less significant in this condition since employees' trust and commitment toward the organization was less of an obligation in the first place (i.e. in economic exchange relationship).

The above argument of importance in congruence of signals can also be explained by the configurational approach in SHRM studies (e.g. Doty, Glick & Huber, 1993; Doty & Glick, 1994; Meyer, Tsui & Hinings, 1993; Miller & Friesen, 1984; Venkatraman & Prescott, 1990). According to the configurational approach, an organization should develop an HR system that is horizontally fit. Horizontal fit refers to the internal consistency of the HR policies or practices in an organization (Delery & Doty, 1996). Although not directly explained from a psychological contract perspective, the importance of horizontal fit has led to the search and identification of “well-fitted” systems such as in high commitment HR systems and high performance HR systems (Lawler, 1986). This argument has been strengthened by numerous empirical studies that shows the positive relationship between these well-fitted systems and organizational outcomes (Combs, Liu, Hall, & Ketchen, 2006; Datta, Guthrie, & Wright, 2005). Therefore, I hypothesize as follows.

***Hypothesis 1:*** *Organizations’ investments in training of their employees will moderate the relationship between the selection of labor cost reduction strategy (downsizing versus reducing pay) and collective employee organizational commitment. Pay-reduced organizations will demonstrate a higher level of collective organizational commitment than downsized organizations when their investment in employee training is high.*

#### **4) The relationship between collective organizational commitment and firm financial performance**

A group of committed employees can be viewed as a valuable, relatively rare and firm specific resource that is difficult for other organizations to imitate for the

following reasons. First, a group of committed employees can be valuable because they drive organizational performance by using discretion to carry out tasks in ways that are consistent with organizational goals (Arthur, 1994). Supporting this view, a study of schools by Ostroff (1992) shows that the organizational commitment at the school level is positively correlated with various measures of organizational performance such as administrative performance, student behavior and satisfaction, and teacher quit intentions. In a similar vein, a recent study by Chun and colleagues (2013) shows a positive link between collective organizational commitment and firm financial performance. Second, a group of committed employees is a rare resource since individuals are becoming increasingly mobile and self-directed in their careers in response to wider economic, societal and technological developments, and thus career management or hierarchical advancement within the organization is less valued (Gubler, Arnold & Coombs, 2014). Third, a group of committed employees is difficult to imitate since organizational commitment is specific to the firm and it is difficult to hire away the whole group of employees (Gong et al., 2009). Moreover, a group may engage in synergetic actions that are difficult to imitate when employees in the group are all committed to same organizational goals (Barney & Wright, 1998; Gong et al., 2009).

Based on the above argument, a group of committed employees can be viewed as a firm-specific human capital that is valuable, rare, and difficult for other organizations to imitate. And according to the resource-based view (e.g. Barney, 1991; Barney & Wright, 1998), firm-specific human capital should enhance firm performance. Therefore, I hypothesize as follows.

**Hypothesis 2:** *Collective organizational commitment is positively related to firm financial performance.*

### **5) Moderated mediation model**

Since I have hypothesized the moderating effect of organization's investment in training on the relationship between the choice of downsizing/reducing pay and collective organizational commitment (Hypothesis 1) and the positive relationship between collective organizational commitment and firm financial performance (Hypothesis 2), by extension, I also hypothesize that organization's investment in training moderates the relationship between the choice of downsizing/reducing pay and firm financial performance. Given that pay-reduced organizations will demonstrate higher levels of collective organizational commitment than downsized organizations when their investment in employee training is high (Hypothesis 1), I hypothesize as follows.

**Hypothesis 3:** *The relationship between the selection of labor cost reduction strategy (downsizing versus reducing pay) and firm financial performance will be conditionally mediated by collective organizational commitment depending on the organization's level of investment in employee training. Pay-reduced firms will demonstrate higher level of financial performance than downsized firms through the mediation of collective organizational commitment when firms' investment in employee training is high.*

## **3. Method**

### **1) Overview and sample**

The data were obtained from the Human Capital Corporate Panel (HCCP), a publicly available database collected by the Korean Research Institute for Vocational Education and Training (KRIVET) in collaboration with the Korea Ministry of Labor. The stratified sampling frame represented all Korean businesses with more than 100 employees, excluding mining, fishing, forestry, agriculture, foreign company subsidiaries, and public service organizations. HCCP is designed to survey companies (for-profit organizations) and their employees about the companies' HR systems, quality of the workforce, and their employee perceptions every two years starting in 2005. Data from the 2005, 2007, 2009 and 2011 surveys are currently available. On average, usable survey responses from 474 companies and 11,164 employees (average of 23.6 employees per company) were received in each survey year.

Among the companies that participated in HCCP, only the companies that participated in two consecutive survey years 2007 - 2009 or 2009 - 2011, companies that are operated solely under the salary schedule pay system among various pay systems (other types of pay systems include job-based, competency-based, and individual annual contract based salary system), and companies with 5 or more employees replying to the organizational commitment questionnaires were included in the final sample. Only companies that are operated solely under the salary schedule pay system were included in the final sample because whether an organization reduced its employees' pay or not was determined by examining the change in their salary schedule over the two survey years (the detailed method of identifying pay-reduced organizations will be discussed in the following "measurement" section). 13.0% of companies that participated in HCCP were

operated solely based the salary schedule system. Companies that participated in 2005 HCCP were excluded in the final sample because the 2005 measure of organizational commitment was different from that of other survey years. The measure of organizational commitment was consistent in the other three survey years.

The final sample excluded firms with missing data and consisted of 50 data points. The details of the data screening process are shown in Figure 1. Among the 50 data points, 32 data points were composed by the companies that participated in 2007/2009 HCCP and 18 data points were companies participated in 2009/2011 HCCP. 14 companies participated in both 2007/2009 and 2009/2011, composing 28 of the 50 data points. The 50 data points are composed of 16 downsized companies (32%), 5 pay-reduced companies (10%), 3 companies that both downsized and reduced pay, (6%) and 26 companies that neither downsized nor reduced pay (52%).

A comparison of the characteristics of the companies in the original survey (HCCP) and companies in the final sample for the analysis showed that there are no significant differences between the two groups in terms of firm financial performance (measured as in ROE) and collective organizational commitment. However, firms in the final sample tend to be smaller (the mean full-time employee for firms in the final sample = 490.5, the mean full-time employees for firms in the original survey = 834.5,  $t = 4.09$ ), more manufacturing-centered (percentage of manufacturing firms in the final sample = 98%, percentage of manufacturing firms in the original survey = 69%,  $t = 4.54$ ), and invest less in employee training (mean training cost per employee for firms in the final sample = 2.32, mean training cost

per employee for firms in the original survey = 5.14, in hundreds of dollars,  $t = 2.07$ ) than firms in the original survey. In the final sample, however, a comparison of the pay-reduced companies and downsized companies showed that there are no significant differences between the two groups in terms of firm financial performance, company size, industry, collective organizational commitment and investment in employee training. The only significant difference between the two groups was the reduction ratio (which will be discussed in details in the following “measurement” section). The details of the comparison between pay-reduced companies and downsized companies in the final sample are shown in Table 1.

## **2) Measures**

***Financial Performance.*** Data from firms in the HCCP were merged with archival organizational-level performance data from the Korea Information Services (KIS), a partner organization of Moody’s. Financial performance was measured in two ways. First, it was measured through return-on-equity (ROE, net profit divided by total equity). ROE is often used as a measure of organizational financial performance in strategic HRM research (e.g. Delery & Doty, 1996; Kepes, Delery, & Gupta, 2009). A higher ROE indicates better financial performance. Financial performance was also measured by dividing operating profit by total equity. This measure is similar to ROE. However, unlike ROE, which uses net profit as the numerator, this measure utilizes operating profit as the numerator. Given that operating profit, compared to net profit, is a profit that is calculated after more controllable expenses and outcomes, it can reflect a firm’s performance more accurately than the net profit can (Koys, 2001; Chun et al, 2013). In this study, the first financial measure will be

referred as “net profit based ROE” and the second financial measure will be referred as “operating profit based ROE”.

**Collective Organizational Commitment.** Collective organizational commitment of non-production line employees<sup>1</sup> was measured by using four item measures, which is the shortened and revised version of organizational commitment measure of Allen and Meyer (1990). The four items were: “Too much in my life would be lost if I decided to leave my organization now”, “I would consider leaving this job if there is a better job offer”, “I feel as if this organization's problems are my own”, and “It’s worthwhile to be loyal to this company”. These four items were aggregated to the firm level using the average measure (firm-level  $\alpha = .82$ ,  $R_{wg(j)} = .89$ ,  $ICC(1) = .17$ ,  $ICC(2) = .77$ ).

**Organization types.** Based on their labor cost reducing strategy, organizations in the final sample are identified into four types: 1) pay-reduced, 2) downsized, 3) both strategies applied and 4) neither strategy applied.

**Pay-reduced organizations.** Companies participating in HCCP reported the absolute pay level of employees in the first year of the three non-production line job levels that are very common and found throughout companies in Korea: entry-level (*Sawon*), mid-manager (*Kwajang*), and non-executive senior manager (*Bujang*). The question that HCCP asks of the HR managers is “What is the total annual pay amount (including base

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<sup>1</sup> In this study, the pay-reduced and downsized organizations were determined based on only the data of non-production line employees. The analysis model in this study is based on the implicit assumption that the pay reduction or downsizing of non-production line employees will have an impact, although disparate, on the organization as a whole and be related to the dependent variables. Therefore, the collective organizational commitment level for only the non-production line employees was measured.



pay, allowances, bonus and incentives) of a first year *Sawon* (or *Kwajang* or *Bujang*)?”

For a company that is operated solely based on a salary schedule pay system<sup>2</sup> (with no use of job-based, competency-based, or individual contract-based pay systems), we can fairly assume that the three distinctive points in its salary schedule, which is a schedule that is applied to all employees in all job families of the company (except to the employees on the production lines), is being reported. Therefore, we can determine whether the company has increased, reduced, or did not change the pay level of employees by examining the change in these three points over time with an assumption that pay amounts in other points of the salary schedule also changed in accordance with the change of pay amounts of these three surveyed points. Reported pay of these three

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<sup>2</sup>Four questions were asked of the organizations in the HCCP to determine their pay systems: 1) Does your organization use a salary schedule pay system? 2) Does your organization use a job-based pay system? 3) Does your organization use a competency-based pay system? 4) Does your organization use an individual annual contract based pay system? Only the organizations that answered “yes” to the first question and “no” to the other three questions were selected in the final sample to avoid possible confounding effects in determining pay-reduced organizations. For example, under the job-based pay system, the decrease in the pay level of the three positions could be due to the change in the composition of the jobs within the three positions, not due to actual pay reduction. (e.g. In time 1, large portion of the 1st year mid-managers could be in the high paying jobs. However, in time 2 (after 2 years), large portion of the 1st year mid-managers could be in the low paying jobs. The decrease in the pay level for the 1st year mid-managers over the 2 years could be due to this composition change. Therefore, by examining only the firms that are operated solely based on a salary schedule pay system, I can exclude the possible confounding effect of job differences (by excluding job-based pay systems), competency differences (by excluding competency-based pay systems) and individual differences (by excluding individual annual contract based pay systems) on measuring pay reduction.

points are added in time 2 (e.g. 2009), and this amount is compared with that in time 1 (e.g. 2007). If an organization's added pay amount of these three points in time 2 is less than that in time 1, the organization is coded as a "pay-reduced organization". The change in the reported pay amount for each point in pay-reduced organizations was also closely examined to verify that the "reduction" in this added amount is not driven by a significant decrease in pay of one point while the pay in other two points were increased. Among organizations that are coded as a "pay-reduced organization", this was not found. The change in pay was examined only through the change in nominal pay, not inflation-adjusted pay. Although the reduction in inflation-adjusted pay decreases purchasing power of employees, the decrease in inflation-adjusted pay without the decrease in nominal pay is less likely to be noticeable and affect employee's perceptions toward the organization.

***Downsized organizations.*** HR managers in companies that participated in HCCP were asked the following question: "Did the company engage in downsizing activities such as layoffs, buyouts, or spinoffs in last two years?" If a company was engaged in a downsizing activity, the number of employees (number of non-production line employees and production line employees) that the company downsized was also reported. Since the pay-reduced organizations were determined based on only the pay data of non-production line employees, only the companies that downsized non-production line employees were coded as "downsized organizations".

***Neither strategy applied organizations.*** Organizations that neither reduced pay nor downsized were coded as "neither strategy applied organizations".

***Both strategies applied organizations.*** Organizations that both reduced pay and downsized were coded as “both strategies applied organizations”. These organizations were not again coded as either pay-reduced organizations or downsized organizations. Therefore, the four conditions (i.e. pay-reduced, downsized, neither strategy applied and both strategies applied organizations) are mutually exclusive.

***Investment in training.*** Organization’s investment in training of its employees was measured through dividing the total cost in training by the total number of employees in the organization. HCCP provided the information of both the total cost in training (including all direct and indirect costs) and the total number of employees.

***Control variables.*** For the model with collective organizational commitment as the dependent variable (i.e. the model for testing hypothesis 1), company size (0 = companies with less than 1,000 full-time employees, 1 = companies with 1,000 or more full-time employees), year effect (2007/2009 = 0, 2009/2011 = 1), reduction ratio, average pay level, and past organizational commitment were controlled. Company size and pay level have been identified as antecedents of organizational commitment at the individual level in past studies (Mathieu & Zajac, 1980). The average pay level was calculated by averaging the total annual pay amount of the three positions (i.e. 1st year *Sawon*, *Kwajang* and *Bujang*). The reduction ratio was controlled to examine the pure effect of selecting one option over the other free from the effect of amount of pay or employees that organizations reduced. For pay-reduced organizations, the reduction ratio was calculated as the difference in the added pay amount of the three positions (i.e. first year *Sawon*, *Kwajang* and *Bujang*) between time 1 and time 2 divided by the added pay amount of the three positions in

time 1 (pay reduction ratio). For downsized organizations, the reduction ratio was calculated as the reported number of downsized employees in between time 1 and time 2 divided by the total number of employees in time 1 (downsize ratio). For both strategies applied organizations, the reduction ratio was calculated by adding the pay reduction ratio and the downsize ratio. For neither strategy applied organizations, the reduction ratio was recorded as 0.

For the models with firm financial performance as the dependent variable (i.e. the models for testing hypothesis 2 and 3), company size, year effect, reduction ratio, and past firm financial performance were controlled. The company size was controlled to consider the possible effect of economies of scale on firm performance. The reduction ratio was controlled to consider the labor cost-saving effect on firm performance. However, industry was not controlled in the analysis model because the 50 firms in the final sample consisted of 49 manufacturing firms and only 1 service firm and controlling for this difference didn't make any significant difference in terms of the relationships of interest in the model. Although the manufacturing firms can be largely grouped into automotive manufacturing, electronics manufacturing, and others, doing so also didn't make any significant difference in terms of the relationships of interest in the model. Also, a closer examination of these industries didn't reveal any theoretical reasons to control for the differences. Becker (2005) and Spector and Brannick (2011) posit that including nonsignificant or meaningless control variables can reduce the statistical power or distort the relationships among the main study variables and thereby be unnecessary.

### **3) Analysis Model**

The model of analysis with time frame is displayed in Figure 2. The sample consisted of an unbalanced panel of companies who participated the HCCP survey in 2007/2009 and 2009/2011. To apply the regression analysis method, I needed to decide whether to use a pooled ordinary least squares (OLS) method, relative to making additional use of panel data method. I decided to use the pooled OLS method for the following two reasons. First, the purpose of this research is to compare differences in outcomes “between” companies with different labor cost reduction strategies, but not to compare differences in outcomes “within” companies. Second, the result of Breusch-Pagan Lagrange multiplier test (LM test)<sup>3</sup> also suggested that the unobserved firm effects in the data is insignificant (p-values of the LM tests in all models were all larger than .05) and thus the pooled OLS method is more appropriate. The effect of difference in time between 2007/2009 and 2009/2011 sample was controlled.

(Equation 1)

$$\begin{aligned} \text{Collective organizational commitment} = & \beta_0 + \beta_1 * \text{Investment in training} \\ & + \beta_2 * \text{Pay-reduced organization} + \beta_3 * \text{Both strategies applied} \\ & \text{organization} + \beta_4 * \text{Neither strategy applied organization} \\ & + \beta_5 * \text{Pay-reduced organization} * \text{Investment in training} \\ & + \beta_i * \text{Controls} + \varepsilon \end{aligned}$$

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<sup>3</sup> The LM test is used to check the presence of unobserved individual effects in the data. The null hypothesis in this test is that variances of individuals’ unobserved effects (firms’ unobserved effects, in this case) are zero. If the null hypothesis is rejected, unobserved effects exist and thereby the panel data method should be applied. Otherwise, the pooled OLS approach is a more appropriate method (Zhang, Li, Li, & Zhou, 2010).

To test hypothesis 1, the significance of  $\beta_5$  in the above OLS Equation 1 is examined, where “Pay-reduced organization”, “Both strategies applied organization” and “Neither strategy applied organizations” are dummy variables denoting 1 as the variable name type of organization and 0 as otherwise. Therefore, the base for comparison in this equation is the “downsized organization” and  $\beta_2$  denotes the difference between the average level of collective organizational commitment in pay-reduced organizations and in downsized organizations.  $\beta_5$  denotes whether this difference is amplified as the investment in training increases.  $\varepsilon$  denotes the error term.

(Equation 2)

$$\begin{aligned} \text{Financial performance} = & \gamma_0 + \gamma_1 * \text{Collective organizational commitment} \\ & + \gamma_i * \text{Controls} + \varepsilon \end{aligned}$$

To test hypothesis 2, the significance of  $\gamma_1$  in the above OLS Equation 2 will be examined.

To test hypothesis 3, the moderated mediation effect, I’ll follow the step-wise procedure recommended by Muller, Judd and Yzerbyt (2005).

(Equation 3)

$$\begin{aligned} \text{Financial performance} = & \delta_0 + \delta_1 * \text{Investment in training} \\ & + \delta_2 * \text{Pay-reduced organization} + \delta_3 * \text{Both strategies applied} \\ & \text{organization} + \delta_4 * \text{Neither strategy applied organization} \\ & + \delta_5 * \text{Pay-reduced organization} * \text{Investment in training} \\ & + \delta_i * \text{Controls} + \varepsilon \end{aligned}$$

(Equation 4)

$$\begin{aligned}
\text{Financial performance} = & \zeta_0 + \zeta_1 * \text{Investment in training} \\
& + \zeta_2 * \text{Pay-reduced organization} + \zeta_3 * \text{Both options applied organization} \\
& + \zeta_4 * \text{Neither option applied organization} \\
& + \zeta_5 * \text{Pay-reduced organization} * \text{Investment in training} \\
& + \zeta_6 * \text{Collective organizational commitment} \\
& + \zeta_7 * \text{Collective organizational commitment} * \text{Investment in training} \\
& + \zeta_i * \text{Controls} + \varepsilon
\end{aligned}$$

According to Muller and colleagues (2005), the following three conditions need to be met to establish the moderated mediation. First, the  $\delta_2$  in Equation 3 should be significant ( $X \rightarrow Y$ : overall main effect) while the  $\delta_5$  in the same equation should not (no  $X * Mo \rightarrow Y$ : no overall moderating effect). Next,  $\beta_5$  in Equation 1 ( $X * Mo \rightarrow Me$ : moderating effect in the model with the mediator as the dependent variable) needs to be significant. Finally,  $\zeta_6$  in Equation 4 ( $Me \rightarrow Y$ : mediator in the full model) should be significant. However, when the mediation process is expected to be theoretically distal, then it may not be necessary to first test the  $X \rightarrow Y$  relationship by using bivariate methods (Shrout & Bolger, 2002). Considering that the process between HR policies and firm financial performance is generally viewed as a distal process (e.g. Jiang, Lepak, Hu, & Baer, 2012), in this study, the significance of  $X \rightarrow Y$  relationship in the first step will not be considered as a necessary step in establishing moderated mediation effect. However, the procedure of estimating conditional indirect effect through bootstrapping will also be applied to supplement the test of overall moderated mediation process (Preacher, Rucker, & Hayes, 2007; Shrout & Bolger, 2002).

## 4. Results

### 1) Descriptive Statistics

The means, standard deviations and correlations among the variables are presented in Table 2. Notable is the mean difference of pay reduction ratio and downsize ratio. This difference shows that, on average, the ratio of reducing employees in downsizing cases is larger than the ratio of reducing pay in pay reduction cases. The mean values of these two variables in the Table 2 were calculated including all the firms in the sample. When only the pay-reduced, downsized, and both strategies applied firms were examined, the pay reduction ratio ranged from 1% to 8% (mean 3.4%) and the downsize ratio ranged from 1% to 72% (mean 15.4%). However, when the notable 72% downsized case was excluded, downsize ratio of the downsized firms ranged from 1% to 37% (mean 12.2%). The mean difference in these two ratios (8.8%) may not be large in terms of reducing labor costs considering the fact that the pay reduction ratio was calculated based on the nominal pay difference, not the inflation-adjusted pay difference. The inflation rates from 2007 to 2009 and 2009 to 2011 in Korea were 7.6% and 7.1%<sup>4</sup>, respectively, and pay-reduced organizations would have had the similar labor cost reduction effect as downsized organizations if the downsized organizations had increased the pay level of remaining employees at least at the inflation rate. Also notable are the differences between the current financial performance and past

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<sup>4</sup> Based on the Consumer Price Index provided by the Statistics Korea

(<http://kostat.go.kr/portal/english/index.action>).



financial performance. This seems to reflect the economic recession since 2008.

Finally, the significant positive correlation between collective organizational commitment and firm financial performance ( $r$  with net profit based ROE = .34,  $p < .05$ ;  $r$  with operating profit based ROE = .38,  $p < .01$ ) is also notable.

## **2) Hypothesis testing**

***Comparison of main effects.*** The results of pooled OLS regression are presented in Table 3. The estimated main effects of labor cost reduction strategies on collective organizational commitment are shown in Model 1 of Table 3. In the second step of the Model 1, the coefficient for pay-reduced organization on collective organizational commitment is not significantly different from zero (estimate = -.001, ns). Therefore, the difference between the average level of collective organizational commitment in pay-reduced organization and in downsized organizations was not significant. In the same model and step, the coefficient for neither options applied organization on collective organizational commitment is not significantly different from zero (estimate = -.030, ns). Therefore, the difference between the average levels of collective organizational commitment in downsized organizations and in neither options applied organizations was also not significant. When the base for comparison in the model was changed to pay-reduced organization, the coefficient for neither options applied organization on collective organizational commitment is also not significantly different from zero (estimate = -.029, ns, not shown in the table). Therefore, the difference between the average level of collective organizational commitment in pay-reduced organization and in neither options applied organizations was also not significant.

**Hypothesis 1.** The estimated moderating effect of investment in training on collective organizational commitment is also shown in Model 1 of Table 3. In the third step of the Model 1, the coefficient of the interaction term of pay-reduced organization and investment in training on collective organizational commitment is significant (estimate = .240,  $p < .05$ ). This suggests that pay-reduced organizations demonstrate a higher level of collective organizational commitment than downsized organizations as the investment in training increases. This supports the Hypothesis 1. This interaction effect is plotted in Figure 3.

**Hypothesis 2.** The estimated main effects of collective organizational commitment on financial performances are shown in “Model 2” of Table 3. In the second step of model 2a and 2b, the coefficients for collective organizational commitment on firm financial performances are both significant (estimate for net profit based ROE = 16.743,  $p < .05$ ; estimate for operating profit based ROE = 21.048,  $p < .05$ ). This shows that there are positive relationships between collective organizational commitment and firm financial performances. Therefore, the Hypothesis 2 is supported.

**Hypothesis 3.** As described in the “Methods” section, recommended steps by Muller and colleagues (2005) will be followed in testing the moderated mediation effect. First, the coefficient of the interaction term of the independent variable and moderator (pay-reduced organization\*investment in training) in Model 3a and 3b of Table 3 are both insignificant (estimate for net profit based ROE = 5.511, ns; estimate for operating profit based ROE = 6.681, ns), suggesting no overall moderating effect of investment in training on the relationship between reducing pay

(compared to downsizing) and financial performance. Therefore, the first condition of “no overall moderating effect (no  $X*Mo \rightarrow Y$ )” is met. Second, in Model 1 of Table 3, the coefficient of the interaction term of pay-reduced organization and investment in training on collective organizational commitment is significant (estimate = .240,  $p < .05$ ). Therefore, the second condition of “significant moderating effect in the model with the mediator as the dependent variable ( $X*Mo \rightarrow Me$ )” is also met. Finally, in Model 4a and 4b of Table 3, the coefficients of collective organizational commitment on financial performances is both significant (estimate for net profit based ROE = 22.049,  $p < .05$ ; estimate for operating profit based ROE = 27.303,  $p < .01$ ). Therefore, the third condition of “significant relationship between mediator and dependent variable in the full model ( $Me \rightarrow Y$ )” is met. Therefore, the Hypothesis 3 is supported.

To secure stronger support for Hypothesis 3, I conducted a bootstrapping analysis utilizing the model 7 of the PROCESS macro by Hayes (2013) in SPSS (ver. 21). The result showed the significant moderated mediation effect of reducing pay (compared to downsizing) on firm’s financial performance through the mediation of collective organizational commitment that is dependent on the firm’s investment in training of its employees (moderated mediation index for net profit based ROE = 5.041, bootstrap 95% confidence intervals [1.046, 35.267]; moderated mediation index for operating profit based ROE = 6.329, bootstrap 95% confidence intervals [1.297, 44.257] ). More specifically, the conditional indirect effect of reducing pay (compared to downsizing) on firm’s financial performance through the mediation of collective organizational commitment was stronger and positive in the high

investment in employee training condition (effect size of 1 SD above the mean for net profit based ROE = 15.698, bootstrap 95% confidence intervals [3.049, 146.788]; effect size of 1 SD above the mean for operating profit based ROE = 19.755, bootstrap 95% confidence intervals [2.964, 178.539]) but was weaker and negative in the low investment in employee training condition (effect size of minimum value for net profit based ROE = -8.465, bootstrap 95% confidence intervals [-27.302, -1.906]; effect size of minimum value for operating profit based ROE = -10.580, bootstrap 95% confidence intervals [-31.283, -1.979]). Therefore, further support for Hypothesis 3 was provided.

***Robustness Check.*** To test the robustness of the result, I re-ran the analysis with first excluding downsized organizations with downsize ratio of 20% or higher, and then also excluding the downsized organizations with the downsize ratio of 10% or higher, from the sample. Although the downsize ratio and the pay-reduction ratio were controlled in the main analysis, the result may have been driven from the difference in the range of dependent variables influenced by the large differences in the range of the downsize ratio and the pay-reduction ratio. After the first step, the downsize ratio of the downsized organizations ranged from 1% to 16% with the average downsize ratio of 6% ( $n = 14$ ). After the second step, the downsize ratio of the downsized organizations ranged from 1% to 9% with the average downsize ratio of 4% ( $n = 11$ ). The statistics in these two groups were much closer to those of pay-reduced organizations. The analyses in these two steps were exactly the same with the earlier result in that all the coefficients that were significant in the pooled OLS model of the main analysis were also significant, in same directions. The only

noticeable difference was that the coefficient on the interaction term of pay-reduced organization and investment in training on collective organizational commitment in Model 1 became marginally significant (estimate = .199,  $p = .087$ ) in the second step (i.e. in the step excluding downsized organizations with the downsize ratio of 10% or higher). Bootstrapping analyses also yielded the same results as in the earlier main analysis in that the moderated mediation index, the interaction effect of reducing pay (compared to downsizing) on collective organizational commitment, and the effect of collective organizational commitment on firm financial performance was all significantly positive.

To address the concern of the relatively small sample size ( $N = 50$ ) and check whether the result was driven by a few influential data points, I also re-ran the analysis by excluding the data points with values more than three standard deviations (SDs) away from the mean in terms of the key variables in the model (i.e. ROE, Collective Organizational Commitment, Investment in Employee Training, and Reduction Ratio,  $N = 48$ ). The pooled OLS regression analysis in this step also all yielded the same results as in the earlier main analysis. The only noticeable difference was that the coefficient on the collective organizational commitment on firm financial performance in Model 1 became marginally significant (estimate for net profit based ROE = 14.574,  $p = .086$ ; estimate for operating profit based ROE = 18.214,  $p = .054$ ). Taken together, the results suggest the robustness of the main analysis.

## **5. Discussion**

## **1) Implications**

The findings in this paper show that on average, there is no significant difference between the effect of downsizing and reducing pay on collective organizational commitment and firm financial performance. This result indicates that in general, downsizing and reducing pay are indifferent options, in terms of collective organizational commitment and firm financial performance, which organizations can adopt in reducing labor costs. However, results also show that reducing pay better preserves the level of collective organizational commitment than downsizing under the condition of high investment in employee training. And in turn, this better preserved level of collective organizational commitment translates into better firm financial performance.

Another notable finding in this paper is that on average, there is no significant difference in the level of collective organizational commitment between downsized and neither strategy applied organizations and between pay-reduced and neither strategy applied organizations. Although the earlier studies at the individual level show that downsizing and reducing pay decreases the level of organizational commitment (e.g. Brockner, Gover & Blonder, 1988; Knudsen et al., 2003), the results in this study indicate that the collective organizational commitment at the firm level may not be affected too much due to these practices. One possible explanation for this result is the role of sorting (which was discussed in the theory and hypothesis section) that has often been overlooked.

The findings in this paper are important for several reasons. First, although scholars have studied the effect of reducing pay and downsizing on employee

motivation and organizational performance, direct comparisons of the consequences of the two strategies have not been previously conducted. The findings in this study are a starting point for considering which strategy may be a better choice relative to the other and under which circumstances. The results of this study can provide a guide to management in deciding which labor cost reduction strategy to take, and when.

Second, findings in this study challenge the thought of many employers that reducing pay is not a useful alternative to downsizing because reducing pay can harm employee morale more than downsizing (Bewley, 1998). This study shows that under certain circumstances, downsizing can hurt employee morale more than reducing pay. The results in this study can urge organizations to carefully think about which type of signals that they are sending to employees before deciding which labor cost reduction option to implement.

Third, this study provides support for the configurational approach in SHRM (e.g. Doty et al., 1993; Doty & Glick, 1994; Meyer et al., 1993; Miller & Friesen, 1984; Venkatraman & Prescott, 1990) by demonstrating the importance of “fit” among HR practices. The results in this study show that the “fit” between investment in employee training and selection of labor cost reduction strategy (downsizing versus reducing pay) can be an important factor in maintaining the level of collective organizational commitment and yielding better firm financial performance. This is also largely consistent with the psychological contract literature in that it suggests the importance of alignment between messages to be sent through HR practices since these messages contribute to beliefs by employees

in forming psychological contracts with their employers (e.g. Morrison & Robinson, 1997; Rousseau & Greller, 1994).

Finally, this study lends further support that a group of committed employees can be a firm specific resource by establishing the link between collective organizational commitment and firm performance and successfully replicating the results in earlier studies (e.g. Ostroff 1992). More specifically, the result shows that a one standard deviation increase in collective organizational commitment is associated with 5.2 unit increase in ROE.

## **2) Limitations**

Despite the implications mentioned above, this study has some limitations. First, due to the fact that the sample is limited to the companies that are operated solely based on a salary schedule pay system, the generalization of this research to companies operating under different pay systems should be made with caution. It's more likely that an egalitarian type of culture may be formed under a more equal pay system, such as the salary schedule pay system (Tang, Furnham, & Davis, 2000). The use of downsizing under an egalitarian culture may affect employee morale more negatively than reducing pay. The moderating effects of investments in training in this research may have been amplified due to the presence of egalitarian cultures.

Second, because I have drawn the sample from Korean companies, generalizing the results in this study beyond the Korean culture deserves revalidation. Since the Korean culture is known to be highly collectivistic (Hofstede, 1980), employees in Korea may expect and develop social exchange relationships



with their employers more than employees in individualistic cultures. Therefore, the moderating effect of investment in training in this research may also have been amplified due to the presence of the collectivistic culture.

Third, my identification of pay-reduced companies may not be definite. To identify pay-reduced companies, I examined three points in the salary schedule provided by the HCCP. I had to make an assumption that the trends of change in the pay levels of these three points also applies to other unrevealed points in the salary schedule.

Finally, this study doesn't identify the exact time point of downsizing and reducing pay. Therefore, the analysis model ignores the potential timing effect in implementing these practices. For example, the analysis model assumes that the pay reductions implemented in the two different time points between 2007 and 2009 have similar effect on collective organizational commitment and firm financial performance in 2009.

### **3) Suggestions for future research and conclusions**

This study indicates that reducing pay, relative to downsizing, can be more or less effective depending on the circumstances (and vice versa). More specifically, the study identifies the level of investment in employee training as a factor that can influence the effectiveness of these labor cost reduction options. In the future, researchers may want to theorize and search for other circumstances, such as other HR practices, business strategies, business environments, cultures, or compositions of workforces, that can influence the effectiveness of these labor cost reduction options. For example, since reducing pay can signal higher job security relative to

downsizing, reducing pay in organizations with a higher composition of the workforce that tends to value job security can be more effective over downsizing than in organizations with a lower composition of these types of employees.

Researchers may also want to closely examine the psychological processes of individuals that contribute to the relative effectiveness between the two labor cost reduction options. For example, in this study, I theorized that downsizing can be viewed by employees as a breach of contract by the employer under the condition of high investment in training. However, this process has only been theorized and has not been empirically examined. Examining this psychological process can be interesting and also make a meaningful contribution to the psychological contract literature.

Finally, researchers may also want to test the findings in other cultural contexts and in organizations with other types of pay systems. As mentioned above, the overall moderating effect of investment in training in this study may have been amplified due to the presence of a collectivistic culture and a pay system that emphasizes an egalitarian culture. Replicating the study in different cultural contexts, especially in a strong individualistic context, would be interesting.

Despite the limitations, the current study offers theoretical insights and empirical contributions related to the dynamics of the relative effectiveness of different labor cost reduction strategies. This study provides a partial answer to the question “which labor cost reduction strategy can be more effective”, and this can better fulfill the practical needs of management than to answer the question “does implementing a labor cost reduction strategy have negative consequences?” The

study also responds to the needs of society for identifying reducing pay as an alternative to downsizing. Among various labor cost reduction options, in contrast to implementing “brutal” downsizing, reducing pay often received attention by society and the media as a way to keep jobs and share the pain as a group (e.g. Hobson, 2009; Lewin, 2009). Answering the question of which labor cost reduction strategy is more effective can be very important since downsizing and reducing pay can significantly affect the labor force involved as well as society.

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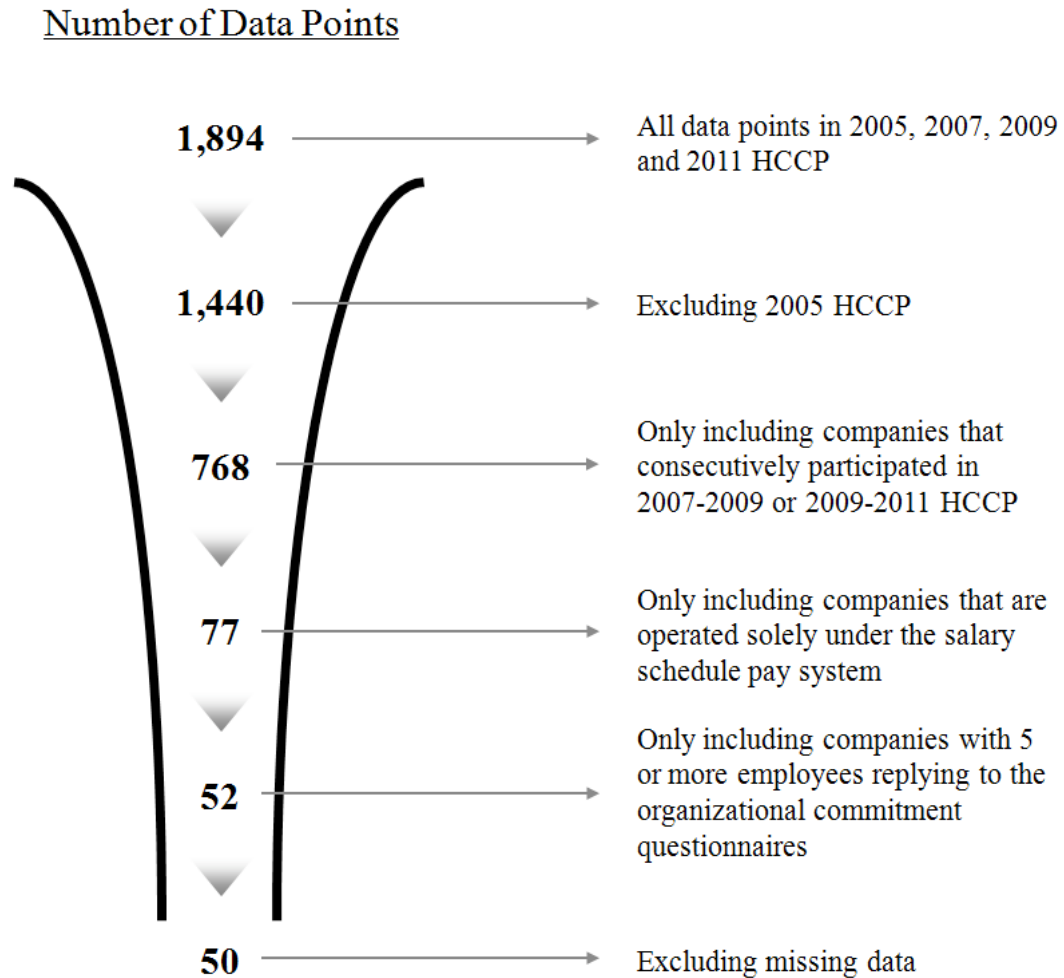
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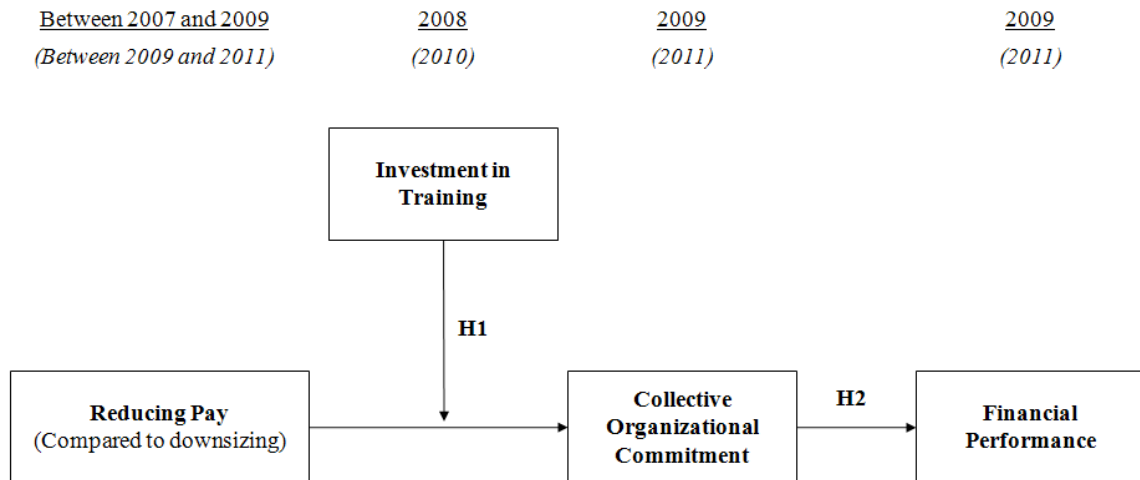
**Figure 1**

**Data Screening Process**



**Figure 2**

**Model of Analysis**



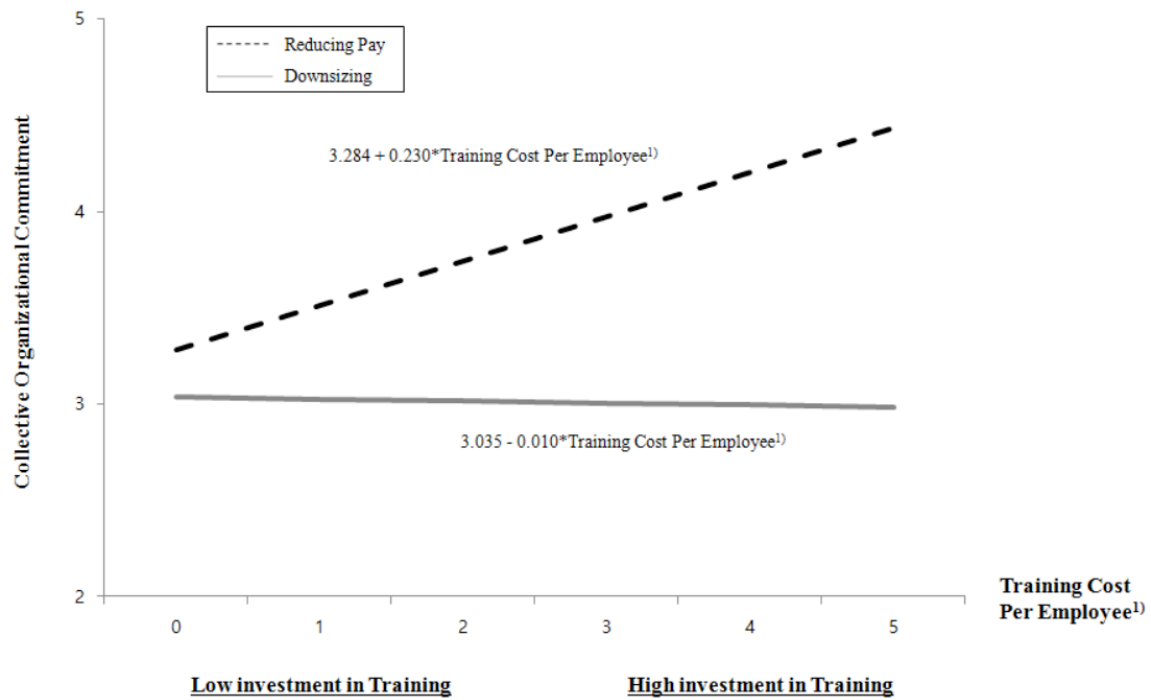
**H3** Moderated mediation: Reducing Pay (Compared to downsizing) \* Investment in training  
 → Collective Organizational Commitment → Financial Performance

\* Years outside the parenthesis denote the time frame for companies participated in 2007 and 2009 HCCP surveys.

\*\* Years inside the parenthesis denote the time frame for companies participated in 2009 and 2011 HCCP surveys.

**Figure 3**

**Moderating Effect of Investment in Training on the Relationship between  
Labor Cost Reduction Strategy and Collective Organizational Commitment**



*1) In hundred dollars (USD:KRW = 1:1000)*



**Table 1**

**Independent-Samples T Test Comparing Pay-reduced and Downsized Organizations**

Variable	Organization Type	Mean	Standard Deviation	t-value	p-value
(1) Company Size <sup>1)</sup>	Pay-reduced	353.6	202.9	-0.369	0.716
	Downsized	397.9	242.5		
(2) Year Effect (2009/2011 =, 2007/2009 = 0)	Pay-reduced	0.200	0.447	-1.26	0.245
	Downsized	0.500	0.516		
(3) Reduction Ratio <sup>2)</sup>	Pay-reduced	2.324	1.818	-3.177	0.006
	Downsized	17.591	18.945		
(4) Average Pay Level <sup>3)</sup>	Pay-reduced	345.333	38.341	-1.655	0.114
	Downsized	415.000	90.325		
(5) Past ROE (Net Profit) <sup>2)</sup>	Pay-reduced	7.130	5.600	0.538	0.597
	Downsized	4.145	11.845		
(6) Past ROE (Operating Profit) <sup>2)</sup>	Pay-reduced	11.264	7.474	0.856	0.402
	Downsized	6.240	12.295		
(7) Past Collective Organizational Commitment	Pay-reduced	3.498	0.378	-0.214	0.833
	Downsized	3.537	0.349		
(8) Investment in Training <sup>3)</sup>	Pay-reduced	1.268	1.355	-0.36	0.723
	Downsized	1.589	1.829		
(9) Collective Organizational Commitment	Pay-reduced	3.556	0.418	-0.62	0.543
	Downsized	3.661	0.304		
(10) ROE (Net Profit) <sup>2)</sup>	Pay-reduced	6.840	8.491	1.101	0.285
	Downsized	-4.156	21.506		
(11) ROE (Operating Profit) <sup>2)</sup>	Pay-reduced	8.734	10.177	1.107	0.282
	Downsized	-2.808	22.287		

\* Note: N = 16 for downsized organizations, N = 5 for pay-reduced organizations

1) In number of employees.

2) In percentage

3) In hundred dollars (US Dollar : Korean Won = 1 : 1000) per employee

**Table 2**

**Means, Standard Deviations, and Intercorrelations of the Variables**

Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Company Size <sup>1)</sup>	.080	.274										
(2) Year Effect (2009/2011 = 1, 2007/2009 = 0)	.360	.485	.086									
(3) Pay Reduction Ratio <sup>2)</sup>	.545	1.557	-.104	-.215								
(4) Downsize Ratio <sup>2)</sup>	5.840	13.303	-.131	.250	-.103							
(5) Average Pay Level <sup>3)</sup>	411.111	82.426	.288*	.302*	-.331*	-.162						
(6) Past ROE (Net Profit) <sup>2)</sup>	8.378	15.342	.230	-.109	-.096	-.172	-.039					
(7) Past ROE (Operating Profit) <sup>2)</sup>	10.878	17.555	.179	-.170	-.108	-.207	-.004	.974**				
(8) Past Collective Organizational Commitment	3.556	.320	-.148	.145	-.075	-.085	.291*	.182	.176			
(9) Investment in Training <sup>3)</sup>	2.319	2.572	.193	-.102	.423**	-.071	.190	-.084	-.094	.039		
(10) Pay-reduced Organization (Others = 0)	.100	.303	-.098	-.111	.385**	-.148	-.275	-.027	.007	-.061	-.138	
(11) Downsized Organization (Others = 0)	.320	.471	-.202	.200	-.243	.612**	.034	-.191	-.183	-.041	-.197	-.229
(12) Both Options Applied Organization (Others = 0)	.060	.240	-.075	-.189	.765**	-.045	-.186	-.126	-.142	-.076	.402**	-.084
(13) Neither Options Applied Organization (Others = 0)	.520	.505	.283*	-.030	-.368**	-.462**	.211	.255	.234	.110	.075	-.347*
(14) Collective Organizational Commitment	3.591	.297	-.234	-.087	-.228	.048	.289*	.075	.066	.238	-.100	-.040
(15) ROE (Net Profit) <sup>2)</sup>	1.005	17.258	-.172	-.254	-.024	-.129	.172	.166	.180	.095	-.170	.114
(16) ROE (Operating Profit) <sup>2)</sup>	1.812	19.397	-.202	-.204	-.035	-.103	.180	.184	.195	.134	-.195	.120

\* Note:  $N = 50$ . \*\*  $p < .01$ , \*  $p < .05$

1) 1 = 1,000 or more employees, 0 = less than 1,000 employees. The mean and standard deviation of company size in terms of number of employees was 490.5 and 364.8, respectively.

2) In percentage

3) In hundred dollars (US Dollar : Korean Won = 1 : 1000) per employee

**Table 2**

**Means, Standard Deviations, and Intercorrelations of the Variables (Continued)**

Variables	(11)	(12)	(13)	(14)	(15)
(1) Company Size <sup>1)</sup>					
(2) Year Effect (2009/2011 = 1, 2007/2009 = 0)					
(3) Pay Reduction Ratio <sup>2)</sup>					
(4) Downsize Ratio <sup>2)</sup>					
(5) Average Pay Level <sup>3)</sup>					
(6) Past ROE (Net Profit) <sup>2)</sup>					
(7) Past ROE (Operating Profit) <sup>2)</sup>					
(8) Past Collective Organizational Commitment					
(9) Investment in Training <sup>3)</sup>					
(10) Pay-reduced Organization (Others = 0)					
(11) Downsized Organization (Others = 0)					
(12) Both Options Applied Organization (Others = 0)	-.173				
(13) Neither Options Applied Organization (Others = 0)	-.714**	-.263			
(14) Collective Organizational Commitment	.163	-.208	-.029		
(15) ROE (Net Profit) <sup>2)</sup>	-.207	-.039	.144	.343*	
(16) ROE (Operating Profit) <sup>2)</sup>	-.165	-.053	.107	.379**	.991**

\* Note:  $N = 50$ . \*\*  $p < .01$ , \*  $p < .05$

1) 1 = 1,000 or more employees, 0 = less than 1,000 employees. The mean and standard deviation of company size in terms of number of employees was 490.5 and 364.8, respectively.

2) In percentage

3) In hundred dollars (US Dollar : Korean Won = 1 : 1000) per employee

**Table 3**  
**Pooled OLS Regression Results**

Variables		Model 1					
		Dependent Variable: Collective Organizational Commitment (Me)					
		Step 1		Step 2		Step 3	
		B	SE	B	SE	B	SE
Controls	Company Size	-.312 <sup>†</sup>	.157	-.327 <sup>†</sup>	.164	-.341 <sup>*</sup>	.156
	Year Effect (2009/2011)	-.157 <sup>†</sup>	.089	-.168 <sup>†</sup>	.091	-.132	.088
	Reduction Ratio	.306	.316	.266	.400	.233	.380
	Average Pay Level	.002 <sup>**</sup>	.001	.002 <sup>*</sup>	.001	.002 <sup>*</sup>	.001
	Past Collective Organizational Commitment	.105	.132	.098	.135	.006	.134
Mo	Investment in Training	-.016	.016	-.005	.018	-.010	.017
X	Pay-reduced Organization (vs. Downsized Organization)			-.001	.161	.249	.187
	Both Options Applied Organization (vs. Downsized Organization)			-.259	.203	-.229	.193
	Neither Options Applied Organization (vs. Downsized Organization)			-.030	.115	-.018	.109
X*Mo	Pay-reduced Organization * Investment in Training					<u>.240<sup>*</sup></u>	.104
Model Fit		N	R <sup>2</sup> (F)	R <sup>2</sup> (F)	Δ R <sup>2</sup>	R <sup>2</sup> (F)	Δ R <sup>2</sup>
		50	.269 <sup>*</sup> (2.643)	.301 <sup>†</sup> (1.909)	.031	.385 <sup>*</sup>	.085 <sup>*</sup>

\*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

※ Continuous variables in the interaction terms were mean-centered to reduce multicollinearity.

Table 3

## Pooled OLS Regression Results (Continued)

Variables		Model 2a				Model 2b			
		Dependent Variable: Net Profit based ROE (Y <sub>1</sub> )				Dependent Variable: Operating Profit based ROE (Y <sub>2</sub> )			
		Step 1		Step 2		Step 1		Step 2	
		B	SE	B	SE	B	SE	B	SE
Controls	Company Size	-13.056	9.159	-8.407	9.131	-16.709	10.221	-11.113	10.043
	Year Effect (2009/2011)	-7.028	5.155	-6.461	4.987	-5.383	5.846	-4.706	5.585
	Reduction Ratio	-11.041	19.086	-11.843	18.439	-9.831	21.613	-10.846	20.626
	Past ROE	.198	.164	.156	.160	.221	.162	.183	.155
Me	Collective Organizational Commitment			<u>16.743</u> <sup>*</sup>	8.135			<u>21.048</u> <sup>*</sup>	9.030
Model Fit		N	R <sup>2</sup> (F)	R <sup>2</sup> (F)	Δ R <sup>2</sup>	N	R <sup>2</sup> (F)	R <sup>2</sup> (F)	Δ R <sup>2</sup>
		50	.126 (1.624)	.203 <sup>†</sup> (2.240)	.077 <sup>*</sup>	50	.121 (1.554)	.218 <sup>*</sup> (2.453)	.097 <sup>*</sup>

\*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

※ Continuous variables in the interaction terms were mean-centered to reduce multicollinearity.

**Table 3**

**Pooled OLS Regression Results (Continued)**

Variables		Model 3a					
		Dependent Variable: Net Profit based ROE (Y <sub>1</sub> )					
		Step 1		Step 2		Step 3	
		B	SE	B	SE	B	SE
Controls	Company Size	-10.787	9.419	-12.520	9.713	-12.167	9.755
	Year Effect (2009/2011)	-7.784	5.205	-7.607	5.375	-7.160	5.419
	Reduction Ratio	-10.694	19.079	8.350	23.586	8.495	23.666
	Past ROE	.173	.166	.144	.170	.130	.171
Mo	Investment in Training	-.994	.971	-1.146	1.091	-1.317	1.113
X	Pay-reduced Organization (vs. Downsized Organization)			9.192	9.459	15.131	11.777
	Both Options Applied Organization (vs. Downsized Organization)			5.430	12.292	6.434	12.389
	Neither Options Applied Organization (vs. Downsized Organization)			9.648	7.051	9.957	7.084
X*Mo	Pay-reduced Organization * Investment in Training					5.511	6.470
Model Fit		N	R <sup>2</sup> (F)	R <sup>2</sup> (F)	Δ R <sup>2</sup>	R <sup>2</sup> (F)	Δ R <sup>2</sup>
		50	.146 (1.510)	.186 (1.172)	.040	.201 (1.116)	.014

\*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

※ Continuous variables in the interaction terms were mean-centered to reduce multicollinearity.

**Table 3**

**Pooled OLS Regression Results (Continued)**

Variables		Model 3b					
		Dependent Variable: Operating Profit based ROE (Y <sub>2</sub> )					
		Step 1		Step 2		Step 3	
		B	SE	B	SE	B	SE
Controls	Company Size	-14.067	10.486	-15.830	10.896	-15.446	10.926
	Year Effect (2009/2011)	-6.342	5.901	-6.106	6.132	-5.592	6.170
	Reduction Ratio	-9.559	21.571	9.280	26.734	9.350	26.787
	Past ROE	.193	.164	.174	.168	.159	.169
Mo	Investment in Training	-1.189	1.094	-1.330	1.232	-1.535	1.254
X	Pay-reduced Organization (vs. Downsized Organization)			9.825	10.699	17.024	13.302
	Both Options Applied Organization (vs. Downsized Organization)			5.583	13.928	6.750	14.014
	Neither Options Applied Organization (vs. Downsized Organization)			9.456	7.940	9.803	7.965
X*Mo	Pay-reduced Organization * Investment in Training					6.681	7.308
Model Fit		N	R <sup>2</sup> (F)	R <sup>2</sup> (F)	Δ R <sup>2</sup>	R <sup>2</sup> (F)	Δ R <sup>2</sup>
		50	.144 (1.484)	.176 (1.094)	.032	.193 (1.061)	.017

\*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

※ Continuous variables in the interaction terms were mean-centered to reduce multicollinearity.

Table 3

## Pooled OLS Regression Results (Continued)

Variables		Model 4a		Model 4b	
		Dependent Variable: Net Profit based ROE (Y <sub>1</sub> )		Dependent Variable: Operating Profit based ROE (Y <sub>2</sub> )	
		B	SE	B	SE
Controls	Company Size	2.635	10.614	2.578	11.533
	Year Effect (2009/2011)	-5.721	5.061	-3.831	5.616
	Reduction Ratio	5.790	22.125	5.572	24.423
	Past ROE	.056	.161	.099	.155
Mo	Investment in Training	-.976	1.047	-1.080	1.151
Me	Collective Organizational Commitment	<u>22.049</u> *	9.058	<u>27.303</u> **	9.936
X	Pay-reduced Organization (vs. Downsized Organization)	7.190	11.334	6.997	12.481
	Both Options Applied Organization (vs. Downsized Organization)	14.322	11.917	16.350	13.127
	Neither Options Applied Organization (vs. Downsized Organization)	7.255	6.932	6.148	7.611
X*Mo	Pay-reduced Organization * Investment in Training	1.240	6.500	1.333	7.163
Me*Mo	Organizational Commitment * Investment in Training	8.782 <sup>†</sup>	4.505	11.020*	4.948
Model Fit		N	R <sup>2</sup> (F)	N	R <sup>2</sup> (F)
		50	.344 <sup>†</sup> (1.814)	50	.371 <sup>†</sup> (2.036)

\*\*  $p < .01$ , \*  $p < .05$ , <sup>†</sup>  $p < .10$

※ Continuous variables in the interaction terms were mean-centered to reduce multicollinearity.